

Masami SONEDA\*: The Yeast *Nadsonia* in Japan曾根田正己\*: 日本新発見の酵母 *Nadsonia* 属

When the present author was studying the yeasts of several trunk exudations in Japan, the author has succeeded in the isolation of curious yeast belonging to the genus *Nadsonia* from pinkish trunk exudation of *Betula japonica* collected by Mr. H. Fukushima.

The genus *Nadsonia* was established by Sydow in 1912, and the following three species were hitherto described; *N. fulvescens* (Nadson et Konokotina) Sydow (1911), *N. elongata* Konokotina (1913) and *N. richteri* Kostka (1927). However, *N. richteri* was identified as synonymous with *N. elongata* by Lodder and Kreger-van Rij in 1952 from the reason that the only differential character between the two species observed in using ethanol as source of carbon cannot be maintained.

The present strain was identified as *N. elongata*, but it differs slightly from the original description and also from another strains.

So far as the author is aware, these members were recorded in the literature of Konokotina (1913) and Kostka (1927).

Couch (1944) isolated a yeast which he identified as *N. fulvescens* growing in the sap of exudation by cut birch stump of North Carolina, but this strain seems to be *N. elongata* following to the classification of Lodder and Kreger-van Rij (1952).

In the same year Sherwin isolated and cultured "*N. fulvescens*" at the same place, but its physiological characters were not at all described.

In the author's knowledge, only one strain of *N. fulvescens*, under the

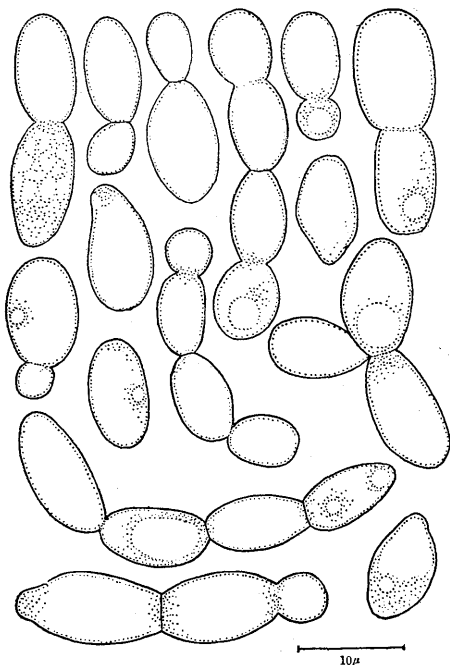


Fig. 1. After 3 days in malt extract

\* Nagao Institute, Kitashinagawa, Tokyo. 長尾研究所

classification of Lodder and Kreger-van Rij, was isolated from exudation of an oak by Nadson and Konokotina in 1911.

Besides, the present author compared his strain with those of *N. fulvescens* and *N. elongata*, the former is originated from N.R.R.L.<sup>1)</sup> (X-991) and the latter from N.C.Y.C.<sup>2)</sup> (376). As the result they are almost same in morphological and physiological properties as far as tested.

The above stated confusion on the taxonomy of *Nadsonia* seems to be due to whether physiological characters are introduced or not.

But the present author followed, in the present course, to the monograph of yeasts by Lodder and Kreger-van Rij (1952) and identified this strain as *N. elongata* Konokotina

***Nadsonia elongata*** Konokotina (1913) in Bull. Jard. Imp. Botan., St. Pétersbourg, 13: 32, 1913 (rev. in, Centr. Bakt. Parasitenk, Abt. II, 40: 177, 1914). Syn. *Guilliermondia elongata* Konokotina (1913); *Nadsonia richteri* Kostka (1927).

Growth in malt extract: After 3 days at 20°C, cells are oval to elongate, sometimes lemon-, pear-, or bottle-shaped. Usually cells are apiculate at both ends, occurring singly, in twos or short chains of 3 or 4 cells. Budding at one or both ends and on broad base, and the cells are freed from each other by a kind of fission. They measure  $(6.0-8.8) \times (9.8-16.0) \mu$ . A thin, yellowish soft, dry, dull, slightly wrinkled and creeping pellicle is formed.

After one month at room temperature, pellicle and sediment are present.

Growth on malt agar:

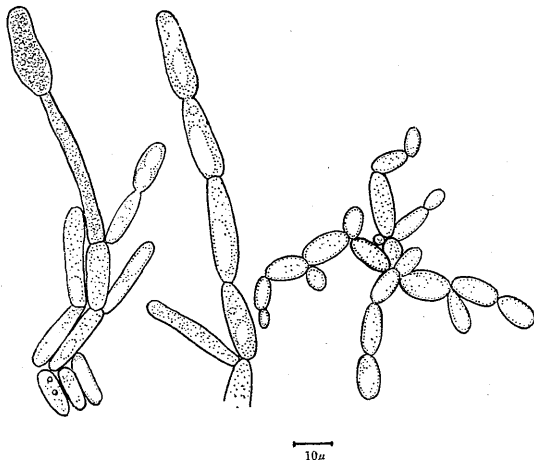


Fig. 2. Slide culture on potato agar

1) N.R.R.L. Northern Utilization Research Branch. U.S. Dept. of Agriculture, Peoria, Illinois, U.S.A.

N.C.Y.C. National Collection of Yeast Culture, Nutfield, Surrey, Great Britain.

After 3 days at 20°C, cells have the same shape as on malt extract,  $(5.0-9.0) \times (7.0-16.5) \mu$ , single, in pairs or in short chains. Budding is bipolar and on a broad base; the bud is connected with the mother cell by wide canal.

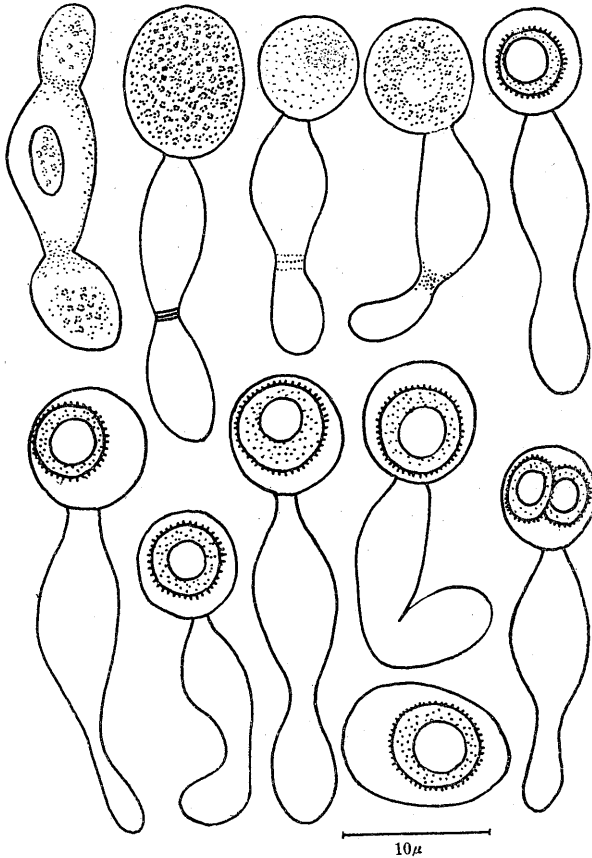


Fig. 3. Spores on malt agar after 10 days

After one month at room temperature, the streak of slant culture is dull, usually raised and finely wrinkle over the entire surface, sinuated in the margin. And when the strain has formed ascospores abundantly, the colour is pale brown, but in young culture it is grayish cream.

Slide culture: Commonly there is a primitive formation of pseudomycelium and elongate cells arranged in chains.

Sporulation: Ascus formation on ordinary medium; at first the mother cell forms a bud which is usually not separate, and then, at the opposite end of the mother cell, another daughter cell buds, the contents of mother cell and first daughter cell pass into a second daughter cell which becomes the ascus. Sometimes the ascus has freed itself from other cells. It is almost round, containing one ascospore or rarely two spores. The ascospores are globose, yellowish-brown with a warty layer of wall including an oil drop.

Fermentation: Glucose+ Galactose— Maltose— Saccharose— Lactose—

Sugar assimilation: Glucose+ Galactose— Maltose— Saccharose— Lactose—

Nitrogen assimilation: Potassium+ (weakly) Ammonium sulfate+ Pepton++  
Asparagin+++ Glutamic acid+++ Urea—

Ethanol as sole source of carbon: Weak growth occurs, some islets are formed.

Splitting of arbutin: Absent.

Optimum temperature: 20°C.

Hab. In trunk exudation of *Betula japonica* Sieb. collected by Mr. Fukushima in Gumma Pref. (March, 1956).

The present strain differs slightly from *N. elongata* Konokotina to described by Konokotina, Lødder and Kreger-van Rij, in respect to presented pseudomycelium and weak positive assimilation of potassium nitrate.

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### Summary

- 1) The present author isolated *Nadsonia elongata* Konokotina from trunk exudation in the spring of 1956.
- 2) The isolated strain weakly assimilated potassium nitrate and abundantly asparagin and glutamic acid.
- 3) This forms primitive pseudomycelium on potato agar.
- 4) Ascospores are formed very easily on common medium.

### Literature cited

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**〇フジイバラ西日本に産す**(靱山泰一) Yasuichi MOMIYAMA: *Rosa fujisanensis* Makino found in western Japan

フジイバラ *Rosa fujisanensis* Makino は、富士とその周辺の山地にのみ産するものと思っていたが、そうではなかつた。おとしの夏、わたくしは、原寛、小川由一両氏とともに、大和の大峯にのぼり、山上が嶽の頂上(約 1700m)で、これを採つた。ことしの夏は、阿波天狗塚(約 1800m)の中腹以上(1450m)で、またこれを採集した。山中二男氏と御一緒であつた。八木繁一氏の御教示によると、伊予大野が原源氏が駄場(約 1400m)にも、フジイバラが多く生じているという。わたくしは、この夏の旅行で大野が原をおとずれる暇をもたなかつたが、そこで採られた山中二男氏の標本を、高知で拝見することができた。また、八木氏のお話では、伊予西赤石山の尾根にも、フジイバラがあるという。京大には、大和大峯、阿波剣山、伊予小田深山(をだみやま)の標本があり、小田深山とあるのは、実は、大野が原のことであるらしい。というのは、小田深山は、地域の名で、大野が原もその中にあり、フジイバラがあるのは、小田深山の中でも、大野が原に限られているらしいからである。また、大和大峯のは、嘗つて、小川由一氏の標本を拝見したり頂戴したりしたが、それは、わたくしが見た、西日本のフジイバラの、最初の標本であつた。この夏、松山の本屋で需めた愛媛風土記という小冊子には、八木氏の筆になる大野が原植物の記事があり、フジイバラも、その中にくわしく紹介されているのを知つたが、これを見ると、四国では、以前から、フジイバラの存在が知られていたのである。かくて、フジイバラは、西日本山地の高処に、点々と分布していることが明らかになつた。その生育地は、ブナ帯の中の疎開地であつて、灌木林の中や、山頂の岩石地や小笹原(ミヤコザサ風の)などに見出される。天狗塚では、麓の方にヤブイバラ *Rosa Onoei* Makino が、1100m 辺から上にモリイバラ *Rosa jasminoides* Koidzumi があり、さらに、1450m 辺から上にフジイバラが出て来るのであつた。そして、それは、頂上近くの 1700m 前後の地点にまで見られた。フジイバラは、元来、外帯山地要素のひとつに数うべき古い種類で、それが富士にとりわけ多いのは、新生の火山に、周囲の山地から、二次的に植民した結果であらうかと思う。フジイバラは、太い主幹をもち、密に枝を分つていて、葉は 3-4 対の小葉から成り、頂小葉は、それほど大きくない。鋸齒は、近似種の中で、最も鋭くまた細かい。短い円錐花序は数花より成り、苞はややひろく、花季は 6-7 月の交、果実は、やや大きめである。葉は、乾くと、黄赤褐色を帯びる傾がある。(資源科学研究所)